UDC: 620.193.5

TSEYTLIN, Kh. L., SOROKIN, Yu. I., BALASHOVA, A. A., BABITSKAYA, S. M.,
LEVIN, Ya. S., KONYUSHENKO, A. T., GOLDSHIN, R. V., and LADYZHINSKIY, B. S.,
Scientific Research Institute of Organic Intermediates and Dyestuffs

"High-Temperature Corrosion of Metals in Gaseous Ammonia"

Abstract: Processes involving the use of ammonia are known to cause corrosion
of equipment. The homogeneous reaction of ammonia dissociation in the gas
phase begins above 1200--1300°C. In the presence of a catalyst this tempera-
ture drops to 300--400°C. Experiments have shown that the type of metal
considerably affects the thermal dissociation of ammonia and that this effect
is a function of temperature. This study describes in detail the testing and
effects of gaseous ammonia on KhN10T steel, KhN78T, N70M27F, and Kh15N55M16V
alloys, VT-1 titanium, and MZS copper. The analysis of experimental data shows
that there is a fundamental correspondence between the effect of metals on
ammonia dissociation and their resistance. Therefore, to insure continuous
service of equipment in gaseous ammonia, it is advisable to use materials which

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USSR

TSEYTLIN, Kh. L., et al, Zashchita Metallov, Vol 6, no. 4, 70, pp 451-454

will not readily catalyze ammonia dissociation. Materials which are suitable
for service under these conditions include carbon steel and N70M27F, Kh15N5516V
alloys up 400°C; Kh18N10T steel and nickel up to 300°C; KhN78T up to 600°C;
aluminum, titanium, and copper up to 450°C. Considering the low specific gravity,
good technological properties, relative availability, and low cost of aluminum,
this metal is preferred in selecting materials for equipment operated in
gaseous ammonia at high temperatures. A table illustrating the performance of
the above metals during 400 hours of testing with gaseous ammonia at high
temperatures, including corrosion rate tensile strength, relative elongation,
% and Vickers hardness, prior to and after the experiment, is given in the
original article.

2/2

USSR

BABITSKIY, A. F. and KRAVCHENKO, A. M., Institute of Hydromechanics, Ukrainian Academy of Sciences

"Conductometric Measurement of Volume Concentrations of the Components of a Two-Phase Flow"

Abstract: Among methods used in industry for determining volume concentrations, those based on variation in electrical properties are most widely employed, and are apparently the most accurate (the so-called conductometric methods). The authors ran tests, using a probe inserted in a two-phase flow directed perpendicularly against an electrode plane, to determine volume concentration on the basis of electrical conductivity.

It was concluded that the accuracy of measurements from a given electrical circuit depends substantially on temperature constancy of the surrounding medium. A number of hours of testing the apparatus in ordinary room conditions showed reading errors of about 5 percent. Greater accuracy can evidently be achieved through thermostatic control of the apparatus, among other corrective measures.
1/1

USSR   UDC 621.81.539.431

POCHTENNYY, Ye. K. and BABITSKIY, M. S., Candidates of Technical Sciences,
and GURSKIY, V. A., Engineer

"Statistical Estimate of Cyclical Strength at Stress Above the Yield Point"

Moscow, Vestnik Mashinostroyeniya, No 7, June 1972, pp 17-20

Abstract: Loads acting upon machine parts under operating conditions bring
about stress in the part material in one of the following ranges: a) prior
to the cyclical yield point, the stresses fail to bring about even local
fatigue damage of the parts; b) stress action within the range between the
cyclical yield point and the endurance limit brings about local fatigue
damage, but does not cause destruction of the parts; c) with stress action
within the range between the endurance limit and the breaking point, damage
of the parts is completed by destruction.

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USSR

UDC: 8.74

BABITSKIY, V. A., KALATSKAYA, L. V.

"Software for a Multiterminal Teaching and Computer System Based on the Minsk-2/22"

Mat. i Inform. Probl. Prognozir. i Upr. Naukon [Mathematics and Information Problems of Prediction and Control of Science--Collection of Works], Kiev, 1971, pp 194-201 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V578, by V. Ostrovskiy)

Translation: A time-sharing system is described. Three operating modes of the system are provided: teaching, author and teacher. The last two modes provide high teaching effectiveness. The system and store and edit incoming information and collect statistical data on the course of teaching. The user relates to the system using a control language which is invariant relative to the contents of the course being studied. The structure of the system is traditional: a supervisor in a certain sequence runs the editor, monitor or one of the service programs. If the system is operating at less than full load, batch problems are activated. Requests for servicing are satisfied in order of arrival (without quantization of the servicing interval of each request).

1/1

USSR   UDC 534.014

BABITSKIY, V.I. and IZRAILOVICH, M.YA.

"Synthesis of a Self-Oscillating Vibration-Shock System"

Moscow, Mashinovedeniye, No 3, May-Jun 71, pp 11-18

Abstract: The synthesis of self-oscillating systems in relation to changes
of basic parameters from nominal was investigated. Formulas and graphic
analyses were compiled to show relative effects of mutual changes of
parameters including period to coefficient of restoration, shock velocity
to coefficient of restoration, and impulse to coefficient of restoration,
all of which depend on the slope of a switching function. For certain
desired parameters, it is possible to derive remaining parameters from the
formulas and graphs. Derived parameters include a sensitivity coefficient
related to the departure magnitude of the coefficient of restoration from
nominal values. A method was described for decreasing the system sensitivity
to changes in the coefficient of restoration. This method is shown to consist
of selecting those optimum parameters from the synthesized formulas which
will afford the desired results for a given oscillating system.

1/1

USSR

BABIY, A. N.

"Extremal Problem of Driving of Mine Shafts"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1975, No 19, pp 72-79 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1975, Abstract No 6V589, by the author).

Translation: A stochastic model of the process of driving a shaft trunk is studied. It is demonstrated that the optimal dimensions of the process should be a solution of a problem in nonlinear programming.

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1/2   028   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--FUNCTIONAL AND STRUCTURAL PECULIARITIES OF TRANSPORT RNA IN
   BIOSYNTHESIS OF PROTEIN WITH SOME PHYSIOLOGICAL STATES OF ANIMALS -U-
AUTHOR-(05)-MATSUKA, H.KH., BABIY, T.P., SKVIRSKA, YE.B., KOVALENKO, M.Y.,
   ELSKA, A.V.
COUNTRY OF INFO--USSR

SOURCE--UKRAYNS'KIY BIOKHIMICHNIY ZHURNAL, 1970, VOL 42, NR 2, PP 217-226

DATE PUBLISHED--------70

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ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE TRANSPORT RNA MANIFEST
FUNCTIONAL AND STRUCTURAL PECULIARITIES AT THE CORRESPONDING
PHYSIOLOGICAL STATES OF AN ORGANISM WHEN CONSIDERABLE QUALITATIVE AND
QUANTITATIVE CHANGES OCCUR IN PROTEIN BIOSYNTHESIS. THESE PECULIARITIES
ARE MANIFESTED IN THE FOLLOWING. THE AMOUNT OF ISOACCEPTOR LEUCIN T-RNA
CHANGES IN THE MAMMARY GLAND. ONE FRACTION OF LEUCIN T-RNA REMAINS
ISTEAD OF TWO WITH TRANSITION FROM THE LACTATE STATE INTO THE
INVOLUTION. BESIDES, THE QUANTITATIVE RATIOS OF SUCH RNA AS GLUTAMINIC
AND PHENYL ALANINE IS CHANGED IN THE LACTIC GLAND WITH THE BEGINNING OF
THE SYNTHESIS OF MILK PROTEINS. GOPHERS, BEING AT THE STATE OF
HIBERNATION, THE AMOUND OF GLYZINE ISOACCEPTOR T-RNA OF LIVER DECREASES
FROM THREE UP TO TWO IN COMPARISON WITH THE ANIMALS AT THE STATE OF
VIGIL. IN RABBITS UNDER CONDITIONS OF STARVATION SUCH T-RNA AS PHENYL
ALANINE, GLYCINE, METHIONINE, LYSINE, LEUCINE AND TYROSINE IS
CONSIDERABLY LOWER THE ABILITY TO ACCEPTATE AMINO ACIDS. THE SAME IS
SHOWN IN EXPERIMENTS WITH METHIONINE T-RNA OF RAT LIVER. THE RESULTS
OBTAINED TESTIFYING IN FAVOUR OF THE FACT THAT DECREASE OF ACCEPTOR
ACTIVITY OF T-RNA WITH STARVATION IS A RESULT OF POSSIBLE CONFORMATION
CHANGES IN MOLECULE OF T-RNA. IT IS ESTABLISHED THAT THE LOST ACCEPTOR
ABILITY OF T-RNA OF FASTENED RABBITS AND RATS IS ALMOST COMPLETELY
RESTORED AFTER HEATING OF T-RNA IN THE PRESENCE OF MAGNESIUM IONS.
BESIDES, TYROSINE T-RNA OF RABBIT LIVER RESTORES ITS ACCEPTOR PROPERTIES
WITH HEATING OF T-RNA IN THE PRESENCE OF MANGANESE AND CALCIUM IONS.

UNCLASSIFIED

USSR

UDC 632.95:634.11

BABIY, V. S., and TSVETKOVA, A. G., All Union Scientific Research Institute of Biological Methods of Plant Protection

"Reaction of the Apple Trees Towards Various Concentrations of Pesticides Used in Small Volume Spraying"

Abstract: In small volume spraying the concentration of pesticides may be lowered by 25% without decreasing its technical effectiveness. The study was carried out on apple trees. Pesticides protecting these trees from pests and diseases had a positive effect on general state of apple trees: their chlorophyll content was higher, water content increased somewhat; the oxidation reduction processes remained unaffected. Lowering of the pesticide concentration also decreased the cost of tree protection.

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USSR

BABIY, V. V., BLIZNYUK, N. K., DENISENKOVA, R. N., KOLOMIYETS, A. F., STREL'TSOV, R. V., FILIN-KOLDAKOV, B. V.

"Method of Fighting Undesirable Vegetation"

USSR Author's Certificate No 303038, filed 20/04/67, published 5/07/71. (Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract No 4N703P by T. A. Belyaeva).

Translation: In order to increase the herbicidal properties of α-(2, 4, 5-tricholorophenoxy)-propionic acid, it is suggested that it be used as its benzylester, which is more active than the other esters of this acid and has very low volatility.
1/1

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USSR

UDC 617.761-009.24-02:616.282.3

KURASHVILI, A. Ye., BABIYAK, V. I., VERICH, G. F., and PLATONOVA, T. G., Academy of Military Medicine imeni S. M. Kirov, Leningrad

"Parametric Description of Vestibular Nystagmus"

Moscow, Vestnik Otorinolaringologii, No 3, 1973, pp 31-35

Abstract: Based on a mathematical analysis of nystagmograms obtained from 50 subjects, the authors constructed empirical and theoretical curves showing the dynamics of the primary parameters of the nystagmic cycle. Using the methods of differential equations theory, they found the secondary parameters that determine the general patterns of nystagmus as a "stimulus -- reaction" process. Determination of the secondary parameters of vestibular nystagmus is of value in tracing the dynamics of the nystagmic reaction in relation to vestibular function and in diagnosing vestibular disorders. Nystagmus can also be modeled on a computer. By introducing perturbations into the secondary parameters, one can obtain nystagmic reactions with preassigned properties, i.e., artifically create pathological situations and subject them to structural analysis.

1/1

- 30 -

USSR   UDC 612.886

KURASHVILI, A. Ye., Professor and BABIYAK, V. I., Candidate of Medical Sciences,
Chair of Otolaryngology, Military Medical Academy imeni S. M. Kirov

"Some Problems in the Physiology of the Vestibular Apparatus"

Abstract: The complete vestibular apparatus is presented as a complex control
system operating on active and passive feedback mechanisms and comprising a
number of components -- inertial and gravitational sensors (cupula, endolymph,
and otoliths), receptors and transformers (spatially polarized hair cells in
cristae and maculae), central stations of information selection and distribution
(the vestibular nucleus complex), mechanisms of direct and associated control
(cerebellum, reticular formation, and thalamus), a system of specific and non-
specific efferent functions (motor nuclei of extrinsic eye muscles, spinal
cord, and hypothalamus), and the sensory (cortical) system with transmission
to the subjective analysor and the second signal system -- which are grouped
into five subsystems: peripheral sensor, specific center, implementing organs,
active control mechanisms, and the autonomic nervous system. Biomechanical
aspects of the otolithic apparatus and of the semicircular canals are discussed,
and the biophysical significance of the polarization of kinocilia is pointed
out. According to the theory of frequency analysis, the semicircular canals
are ideal sensors of the angular velocity of the rotation of the head.
1/1

USSR   UDC 541.69+542.91+547.631.4

GAMBURYAN, A. A., BABIYAN, N. A., MOROZOVA, N. M., AKOPYAN, N. YE., CHAUSHYAN,
K. M., and MNDZHOYAN, L. O., Institute of Fine Organic Chemistry imeni A. L.
Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Studies in the Field of Aminoethers. V. Dialkylaminoalkyl Ethers of
Benzhydrol and o-, m-, and p-Benzydrols - their Synthesis and Neuropharma-
cological Activity"

Abstract: By the rearrangement of quaternary salts formed by aminoalcohols
with benzhydryl chlorides, the aminoethers $RC_6H_4-CH(Ph)-OC_nH_{2n} \cdot NR'_2$ were
prepared, where R = H or o-, m-, p-Me; R' = Me, Et; C_nH_{2n} = $(CH_2)_2$, $(CH_2)_3$,
$(CH_2)_4$, $CH(Me)CH_2CH_2$, $CH(Me)CH(Me)$, $CH_2C(Me)_2CH_2$. Physiological tests carried
out with the aminoethers upon their conversion to hydrochlorides showed that
transition from beta-dialkylaminoethyl ethers to propyl ethers increased the
antispasmodic activity. This activity again decreased on transition to dialkyl-
aminobutyl ethers. Some of the compounds that has been prepared exhibited
an antihistaminic activity in tests on the isolated intestine of guinea pigs.
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USSR

GAMBURYAN, A. A.,   et al., Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10,
1971, pp 900-908

The compounds synthesized together with their physical properties and the
melting points of hydrochlorides or iodomethylates are listed in tables.

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USSR   UDC: 621.397:621.396.4

BABIYENKO, P. A.

"On the Problem of Nonlinearity of the Amplitude Characteristics of Video
Channels of Main Communications Lines"

V sb. Vopr. Elektrosvyazi (Problems of Electrical Communications--collection
of works), 1970, pp 58-62 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract
No 11G156)

Translation: The author discusses problems of monitoring the nonlinearity
of amplitude characteristics of video signals on main communications lines
and of accounting for the effect which the form of these characteristics has
on nonlinear distortions of TV signals. It is shown that nonuniformity in
differential amplification of the video channels of main communications lines
leads to a loss of quality in monochromatic and color TV. Grounds are given
for the necessity of taking measures to correct the nonlinearity of amplitude
characteristics of TV channels on main communications lines. Three illus-
trations, bibliography of five titles. Resumé.

1/1

Acc. Nr: *AP0051907*

Ref. Code: *UR0475*

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 2, pp 8-12

SUMMARY

ELECTROGRAPHIC EXAMINATION OF THE GASTRIC AND DUODENAL MOTOR FUNCTION

A. P. Babiyets (Vinnitsa)

Patients with diverticuli of the duodenum accompanied by motor disorders in the absence free and bound hydrochloric acid showed the hyperkynetic type of electrogastro- and electroduodenograms. In ulcerative diverticuli and multiple diverticulosis with decreased gastric acidity an hypokynetic type of the electrogram was registered.

It is concluded that depending on the complications of duodenal diverticuli one finds different disorders of the duodenal and gastric motor function and different electrographic characteristics.

REEL/FRAME
19820390

USSR

BABKIN, A. G., editor

Khimicheskaya tekhnologiya pererabotki redkometal'nogo syr'ya kol'skogo poluostrova (Chemical Technology for the Processing of Rare-Metal Raw Materials From the Kola Peninsula), Leningrad, "Nauka," 1972, 123 pp

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USSR

BABKIN, A. G., "Nauka, 1972, 123 pp

2/3

USSR

BABKIN, A. G., "Nauka," 1972, 123 pp

3/3

Acc. Nr:
AT0048313

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:
UR 0020

95994a Effect of the supporting electrolyte on the formation of finely divided precipitates during the reduction of metals at a mercury electrode. Geinrikhs, K. Ya.; Babkin, G. N.; Kozlovskii, M. T.; Gladyshev, V. P. (Inst. Khim. Nauk, Alma-Ata, USSR). Dokl. Akad. Nauk SSSR 1970, 190(1), 135-7 [Phys Chem] (Russ). The effect of the supporting electrolyte on the electrode position of finely divided Cd onto a still Hg electrode was studied by measuring polarization (η) in ClO_4^- solns. of different concn. contg. 0.5N Cd^{2+}. At pH 6.5, the η values were independent of the nature of the anions (S^{2-}, Cl^-, or ClO_4^-). In each case, at the limiting c.d., the finely divided Cd was formed; vibrating the electrode caused rapid dissoln. of the Cd into the Hg. Increasing the $NaClO_4$ concn. increased the η and decreased the limiting c.d. At concn. >0.5M $NaClO_4$, the voltage oscillated and Na amalgam was formed during these oscillations. At higher c.ds., Cd was chem. pptd. by the amalgam to form the powd. Cd. The ability to form powd. Cd decreased from $Li^+ > Na^+ > K^+ > Cs^+$. The limiting c.d. for Cd redn. was not a function of pH. The reason for the finely divided deposits was not the passivating action of OH^-.

S. G. Meibuhr

REEL/FRAME
19800015

IB   18

USSR

UDC 541.15+541.6+546

BABKIN, U. YU., and TSETLIN, B. L.

"Radiational Grafting Polymerization as a Method for Modification of Polymers and Inorganic Materials"

Abstract: The methods of synthesis and the areas of application of grafted systems have been analyzed in which homogeneity or interphase contacts are fixed by the chemical bonds between two types of polymer chains or between the polymer chains and the surface of mineral bodies. The question of the stability of such systems and the distribution of the grafted polymer in such systems is being discussed. Examples of practical utilization of radiational grafting polymerization have been described used in modifying textile fibers, fabrics and filtering materials with the overall goal of improving their utilization properties as mineral-organic fillers and pigments. It has been shown that this method has possibilities in producing oriented grafted systems, materials with novel compositions and ion exchange materials.

1/1

USSR   UDC 51:621.391

BABKIN, V. F.

"Simple Method for Universal Coding of Source of Independent Messages"

4-y Simpozium Po Probl. Izbytochn. v Informatsion. Sistemkh. Dokl. Ch. 2. [4-th Symposium on Problems of Redundancy in Information Systems. Reports, Part 2 -- Collection of Works], Leningrad, 1970, pp 30-36 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V377 by S. Kislitsyn).

Translation: A binary sequence to be transmitted is divided into blocks of length n. Each such block is set in correspondence with a code pair of numbers (k, b_k), where k is the number of ones in the block, while b_k $(0 < b_k < C_n^k - 1)$ unambiguously characterizes the placement of the ones in the block. If the ones in the block are located at positions $i_1, i_2, \ldots, i_k$, the sum $\sum_{l=1}^{k} C_{i_l-1}^{l}$ is taken as b_k.

This selection of b_k has a number of advantages over other methods.

1/1

Refractory Materials

KASHCHEYEV, I. D., BARKIN, V. G., MAMYKIN, P. S. and TSAREVSKIY, B. V.,
Ural Polytechnic Institute imeni S. M. Kirov

"Kinetic Characteristics of Wetting and Impregnation of Magnesium Oxide
With Fayalite"

Abstract: A study has been made of the effect of saturating electrically
molten magnesium oxide with a soluble salt of chromium acetate (7.50 g per
1 liter H_2O) on the capillary impregnation rate and spreading of fayalite
over the surface of MgO under isothermal conditions. With increasing
temperature, the impregnation rate increases. In specimens treated with a
chromium acetate solution the impregnation rate drops to one half of the
initial rate. Applying a chromium salt film to electrically molten MgO
plates reduces the initial spreading rate from 400 and 700 deg/sec to 95
and 180 deg/sec at 1250 and 1300°C, respectively. To determine the
impregnation rate, use was made of a method in which the movement front of
the impregnating liquid is continuously fixed by variations in the resis-
tivity of the specimen. The wetting rate was evaluated by changes in the
angle of flow of the drop in time. (4 illustrations, 12 bibliographic
references)
1/1

USSR   UDC 534-14

BABKIN, V.P., FADEYEVA, L.M.

"Model Experiments On Attestation Of Spherical Targets"

Translation: An experimental study is made in a hydroacoustic basin of returns dispersed by various screens during their irradiation by audio pulses of ultrasonic frequency. The results are presented of experiments on measurement of the frequency response of the scattering amplitude by spherical targets with a 25-mm radius, made from steel, Dural, brass, ebonite, organic glass, and lead. It is shown that the average interval between neighboring maxima is monotonically connected with the velocities of the shear waves originating in the material of the target by the action of an incident wave. The frequency spectra are given of the back scattering of the UE (?ultrasonic echoes) by pairs of targets located at various azimuthal angles to the direction of the incident wave. 12 fig. 3 tab. 14 ref. L.K.

1/1

USSR   UDC 536.46:533.6

BABKIN, V. S., V'YUN, A. V.

"The Upper Limit of Flame Propagation Under Pressure in a Limited Space"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works),
Moscow, "Nauka", 1972, pp 289-292 (from RZh-Mekhanika, No 3, Mar 73, Abstract
No 3B970)

Translation: It is shown that free convection plays a considerable role on
flame propagation limits. The flame propagates over the entire volume under
ignition of the mixture at the center of a spherical vessel in the limit as
a result of convection and heat losses to the walls. A similar phenomenon,
partial propagation of the flame (the upper limit with respect to pressure in
a limited space), is observed upon a change in pressure if the convection rate
is commensurable with the visible flame velocity. A consequence of this pheno-
menon is the inadequacy of the results in terms of combustion in tubes of
various diameters. The conclusions of this study emphasize the necessity for
selecting a criterion for the explosive hazards of mixtures. Authors' abstract.

1/1

USSR   UDC: 621.317.335

BABKIN, V. V., SHAMRAY, B. V.

"An Adaptive Method for Automatic Measurement of the Temperature Coefficient of Capacitance"

Translation: The authors substantiate the feasibility of using a frequency-time method of measuring the temperature coefficient of capacitance of capacitors under conditions of adaptation to the initial capacitance. A circuit is described which can be used to measure the temperature coefficient of capacitance of capacitors with high precision over a range of 1-10,000 pF. Resumé.

1/1

USSR   UDC: 621.373.531

BABKIN, V. V., SHAMSHAI, B. V.

"An Oscillator Which Produces a Series of Square Pulses"

Izv. Leningr. elektrotekhn. in-ta (News of the Leningrad Electrical Engineering
Institute), 1969, vyp. 81, pp 210-211 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract
No 7G273)

Translation: The paper describes an oscillator which produces a series of square
pulses with given prf, amplitude, and length of the series. The pulse length is
equal to the duration of a pause. All these parameters are given by corresponding
codes. N. S.

1/1

USSR   UDC: 621.396.69:621.316.8

BABKIN, V. V., SHAMRAY, B. V.

"Standardization of Automatic Devices for Inspection of Radio Components"

Tr. Sev.-Zap. zaochn. politekhn. in-t (Works of the Northwest Polytechnical Corre-
spondence Institute), 1969, No 4, pp 93-97 (from RZh-Radiotekhnika, No 7, Jul 70,
Abstract No 7V337)

Translation: The authors evaluate the possibility of standardizing automatic de-
vices for inspection of radio components (resistors, capacitors and inductors)
built into the automatic line for production of these components. The most complex
operation is that of checking the temperature coefficient of stability. Ye. M.

1/1

USSR

UDC 681.327.11

ANTONOVA, T. N., BABKIN, V. YA., IOFFE, M. G., KOSHEVOY, L. L., SHLYAKHTER, D. M.

"A Device for Recording Information"

Abstract: This author's certificate introduces a device for recording information and contains memory units, distributors, a master oscillator, an electronic clock, a control module, a printout and logic circuits. As a distinguishing feature of the patent, speed is increased and reliability is improved by introducing an inhibitor connected between the master oscillator and the distributor counter. One of the inputs of this counter is connected to the outputs of the flip-flops in the cells of the memory units, while its other input is connected through an OR gate to the outputs of the coincidence circuits of these cells. Also incorporated in the device is a printout control module which contains a coincidence whose inputs are connected to the outputs of the coincidence circuits in the memory units and to one of the inputs of the coincidence circuits of the control module. A flip-flop is also added with its input connected to the output of the coincidence circuit

1/2

USSR

ANTONOVA, T. N., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 23, 1970, Author's Certificate No 276514, Filed 18 Mar 69, p 137

and its output connected to one of the inputs of the other coincidence circuits in the control module, which are connected through OR circuits to the output amplifiers.

2/2

USSR   UDC 616.981.452-084.47

AGAFONOV, V. I., BABKIN, Ye. I., VDOVIN, D. G., VOROBEYCHIKOV, V. M.,
VOROB'YEV, A. A., GAMLESHKO, Kh. P., GAPOCHKO, K. G., GEFEN, N. Ye., YEVSTIGNEYEV,
V. I., YEMEL'YANOVA, O. V., ZEMSKOV, Ye. M., MAMALIYEV, O. G., KAPALOV, I. I.,
KVIRIKADZE, V. V., KUTYREV, P. A., MISHIKOV, O. P., PUSHKAREV, V. P., and
ROZDESTVENSKIY, D. A., Military Medical Academy imeni S. M. Kirov, Leningrad

"A Comparative Efficiency Characteristic of Different Immunization Methods
Against Plague Infection"

Abstract: Analysis of the available literature data led to the conclusion
that oral, aerogenic, and jet immunization methods are the most efficient
compared with subcutaneous and skin methods. The average number of patients
inoculated against plague infection was 517, 817 (419), and 937 per hr for jet
injectors, aerogenic method liquid and dry vaccine, and oral method (tablets),
respectively, compared with only 43 and 28 for the subcutaneous and skin
methods, respectively.

1/1

Titanium

UDC: 621.7??.??

ROZEMFEL'D, I. L., ?????? Yu. A., and ALTSEYEVA, Ye. I.

"Etching High-Strength Titanium Alloys Without Hydrogenation"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 410-415

Abstract: A review of earlier research shows that etching of titanium alloys extensively used in electrolytes comprising various combinations of hydrofluoric, sulfuric, hydrochloric, and nitric acids and salts containing fluorine ions is attended by the undesirable effect of hydrogenation. This study concerns the kinetics of the cathodic process in electrolytes containing HNO_3 and HF and the determination of etching potential regions which will eliminate hydrogen depolarization and, consequently, hydrogenation, and will also insure an adequate etching rate. The constructed ternary diagrams for the systems HNO_3-HF-H_2O reflect the etching rate, stationary potentials, and the hydrogenation of the VT-15 alloy as functions of the component ratio. A correlation of the results of two independent methods shows that the data of electrochemical studies may serve as a valid basis for selecting electrolytes for etching titanium alloys without hydrogenation. An electrolyte composition (30--42 wt.% HNO_3+9-16 wt.% HF) providing an adequate etching rate of the VT-15 alloy, good surface quality, and freedom from hydrogenation has been determined. Etching VT-14, VT-19, and VT-16 high-strength titanium alloys in an electrolyte containing ?? ?? ?????? will be at room temperature involves no hydrogenation.

USSR   UDC: 621.391.2

BABKIN, Yu. S., ISKHAKOV, I. A., SOKOLOV, A. V., STROGANOV, L. I., SUKHONIN, Ye. V.

"On the Problem of Attenuation of Emission on a 0.96 mm Wave in Snow"

Abstract: This work was done to study attenuation on a 0.96 mm wave on a 680 m
transmission path in snows of up to 2 mm/hr expressed in the amounts of water
precipitated. The experimental part of the work was done in 1969-1970 in the
central European section of the Soviet Union. Precipitation was measured by
three P-2 recording rain gauges placed at both ends of the transmission path
and in the middle. Temperature, pressure, humidity and wind speed were measured
at the same time. Rotating one-meter Cassegrain antennas were used. It was
found that attenuation in rains of the same intensity (2 mm/hr) is approximately
30-40% lower. A strongly idealized calculation is given within the framework of
Mie theory for attenuation in snows. The results agree satisfactorily with
experimental data if the effective radii of spherical snow particles are inter-
polated. The authors thank K. A. Kolosov for advice and for remarks made during
the work.

1/1

USSR   UDC: 621.391.2:621.396.96

BABKIN, Yu. S., ZIMIN, N. N., IZYUMOV, A. O., ISKHAKOV, I. A., SOKOLOV, A. V., STROGANOV, L. I., SUKHONIN, Ye. V., SHABALIN, G. Ye.

"Measurement of Rain Attenuation on a 0.96 mm Wave Over a 1 km Route"

Abstract: An investigation is made into attenuation in rains of varying intensity and a relationship is found between the attenuation and the mass of water precipitated in a given time interval. The transmitter was a frequency-stabilized unit based on a backward-wave oscillator, and the receiver used an indium antimonide detector cooled to liquid helium temperatures. Rotating one-meter Cassegrain antennas were used. Rainfall was registered by three P-2 recording rain gauges placed at both ends and in the middle of the 1 km transmission path. Temperature, pressure, humidity and wind speed were also measured. Attenuation on a 0.96 mm wave was determined from the change in signal level at the receiver during rains. For rain intensity of 0.12 mm/hr (covering more than 99% of all cases) the attenuation on a 0.96 mm wave in decibels per kilometer is approximately $1.53 \cdot I^{0.038}$, where I is rain intensity in mm/hr. This is 2.5-3 times the attenuation observed on a wave of 8.6 mm.

1/1

USSR

ZAVLIN, P. M. D'YAKONOV, A. N., AL'BITSKAYA, V. M., and BABKINA, E. I.,
Leningrad Institute of Cinematographic Engineers

"Reaction of Ditioesters of Cyclohexylphosphonous and Thiophosphonic
Acids With Decyl Alcohol"

Abstract: Heating S-phenyl-SObenzylcyclohexyldithiophosphonite or its
trithio homolog with decyl alcohol at 210° for 6 hrs yields the respective
thiophenol and O-decyl-S-benzylcyclohexylthiophosphonite. When S-heptyl-
S-benzylcyclohexyldithio(trithio)phosphonite is heated with decyl alcohol,
the products are heptylmercaptain and O-decyl-S-benzylcyclohexylthiophos-
phonite.

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USSR   UDC 547.241

LEVIN, Ya. A., GILYAZOV, M. M., and BARKINA, E. I., Institute of Organic
and Physical Chemistry imeni A. Ye. Arbuzov, Kazan' Branch of the Academy
of Sciences USSR, and the Branch of the Scientific Physical Chemical
Research Institute imeni L. Ya. Karpov

"Cyclohexyl-β-chloroethylphosphinic Acid and Its Derivatives"

Abstract: Reaction of cyclohexyldichlorophosphine with ethylene oxide in
ether at 0° gives a quantitative yield of di-β-chloroethylcyclohexylphos-
phonite, n_D^{20} 1.5055, d^{20} 1.2280, which rearranges after heating to the
β-chloroethylester of cyclohexyl-β-chloroethylphosphinic acid, b.p.
133-140/0.02 mm, n_D^{20} 1.5090, d_4^{20} 1.2400. The latter treated with PCl_5
yields cyclohexyl-β-chloroethylchlorophosphinate, b.p. 109-110°/0.03 mm,
n_D^{20} 1.5175, d_4^{20} 1.2500 which can be hydrolyzed to cyclohexyl-β-
chloroethylphosphinic acid, m.p. 50-52°.

1/1

USSR

BABKINA, E. I., VINOGRADSKAYA, L. S., DOBROVA, Ye. I., and GUR'YEVA, N. A.,
Branch of the Physical Chemical Scientific Research Institute imeni L. Ya.
Karpov

"Radiochemical Synthesis of Organophosphorus Compounds Based on Indene and
Phosphorus Trichloride"

Abstract: Gamma irradiation of the mixtures of indene and PCl_3 under con-
ditions favoring either addition of PCl_3 to the double bond or polymerization
as well as under conditions practically excluding the possibility of polymeri-
zation yields, fails to induce the addition of PCl_3 to the indene along the
double bond. This may be due to an extremely unsaturated state of the indene
double bond leading principally to the polymerization products.

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UDC 547.241

USSR

GRAPOV, A. F., KOZLOV, V. A., BABKINA, E. I., and MEL'NIKOV, N. N., All
Union Scientific Research Institute of Chemical Plant Protective Agents,
and the Branch of the Scientific Physical-Chemical Research Institute
imeni L. Ya. Karpov

"Chlorocyclohexylthiophosphonic Acid and Cyclohexenylthiophosphonic Acid
Chlorides and Amides"

Abstract: Heating phosphorus trichloride with chlorocyclohexyldichloro-
phosphine at 125° for 3 hrs yields 2-chlorocyclohexylthiophosphonic acid
dichloride, which reacted with triethylamine in benzene solution converts
to cyclohexen-1-ylthiophosphonic acid dichloride. α-Chlorocyclohexyldichloro-
phosphine reacted with triethylamine yields cyclohexen-1-yldichlorophosphine
which can be converted to a derivative of tetracoordinated phosphorus by an
exchange reaction with phosphorusthiotrichloride.

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USSR

UDC 547.26'118

ZAVLIN, P. M., D'YAKONOV, A. N., AL'BITSKAYA, V. M., and BABKINA, E. I.,
Leningrad Institute of Cinematographic Engineers

"Reaction of Nonsymmetric Diesters of Phosphonous Acids With Nucleophilic
Reagents"

Abstract: Reactions of nonsymmetric diesters of cyclohexylphosphonous acid
with decyl alcohol were studied. In the process of equilibrium transesteri-
fication, this equilibrium is shifted in the direction of the low-boiling
product. In contrast to the derivatives of phosphonic acids, the phosphonous
acids show apparently no effect of the vacant 3d orbitals of tricoordinated
phosphorus atom on the direction of transesterification processes.

1/1

USSR

BABKINA, E. I., VERESHCHINSKIY, I. V., Scientific Research Institute of
Physical Chemistry imeni L. Ya. Karpov

"Radiochemical Synthesis of Organophosphorus Compounds. III. Effect of Small
Amounts of Additives on the Yield of Products of the Reaction of Olefins With
Phosphorus Trichloride"

Abstract: An investigation was made of the effect of various additives on the
reaction of cyclohexene with phosphorus trichloride. It was found that
addition of benzene, carbon tetrachloride and water double the yield of the
final product -- β-chlorocyclohexyl dichlorophosphine -- at 20^{0}C, and increase
the yield by one-fourth at 100^{0}C. Addition of $Fe_2(SO_4)_3 \cdot 9H_2O$ reduces the
yield by 70-80%, while the addition of $CuCl \cdot Cu(OH)$ and $CuCl_2 \cdot Cu(OH)_2$ com-
pletely suppresses the process of addition of PCl_3 to cyclohexene.

1/1

- 23 -

Molecular Biology

BABKINA, G. T., KNORRE, D. G., and MALYGIN, E. G., Institute of Organic
Chemistry, Siberian Department of the Academy of Sciences USSR

"Effect of Cobra Venum RNAse on tRNA Modified by Water-Soluble Carbodiimide"

Abstract: tRNA modified by the po-toluenesulfonate of N-cyclohexyl-N'-
[β-(4-methyl-morpholinium)ethyl]carbodiimide does not interfere with the
action of cobra (Naia oxiana) venom RNAse on the phosphodiester bonds ad-
jacent to the modified uridine residues. Of the four possible types of
bonds differing from one another in their orientation to the modified
nucleotide residue and in the nature of the latter, only the bonds adja-
cent to quanosine ribose are relatively resistant to hydrolysis. The
calculations based on experimental data concerning the relationship be-
tween the degree of hydrolysis of tRNA by cobra RNAse and the degree of
modification of bases were found to be consistent with a model of enzymatic
activity previously proposed by the authors in which the enzyme-substrate
complex of RNAse and polyribonucleotides is formed when the molecule of the
enzyme comes into contact with the trinucleotide chain of the substrate.
1/1

1/2   028   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--WATER DILUTED RESINS FOR ELECTRODEPOSITION -U-

AUTHOR--BABKINA, M.M,

COUNTRY OF INFO--USSR

SOURCE--LAKOKRASOCH. MATER. IKH. PRIMEN. 1970, (1), 78-82

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--WATER, AQUEOUS SOLUTION, METAL COATING, ELECTRODEPOSITION,
    RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0545   STEP NO--UR/0303/70/000/001/0078/0082

CIRC ACCESSION NO--AP0107150
                            UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0107150
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF AQ. SOLNS. OF POLYMER
   RESINS FOR ELECTRODEPOSITION ON METALS IS REVIEWED WITH 82 REFS.

0123

UNCLASSIFIED

BABKINA, O. I.

physiology

EFFECT OF DIFFERENT ATMOSPHERES ON ACTIVE TRANSPORT OF GLUCOSE IN THE SMALL INTESTINE OF RATS

Abstract: Experiments conducted with segments of the small intestine in rats gave evidence that a preliminary exposure of the animals to a modified atmosphere (hypoxia -- ascent to an altitude of 12,000 m; hypercapnia -- 20% CO_2; hyperoxia -- 100% O_2 at a pressure of 4 atm) accelerated the active transport of glucose. Exposure to a hypoxic atmosphere induced the greatest changes.

The investigation of body functions with a change in the surrounding atmosphere is of great importance for space biology and medicine in relation to the problem of forming an artificial atmosphere in spacecraft cabins. This makes it possible to devise a number of prophylactic measures for preventing the development of pathological states in cosmonauts (Gooden).

The digestive system is readily damaged when the body is exposed to extremal factors (I. P. Razenkov; van Liere; Barron and Cook).

The principal and final stage in the complex activity of digestive organs is the suction of matter in the digestive tract. The weakening or impairment of resorptive activity is reflected in other body functions, this leading to profound changes in trophic processes in the organs and tissues. In the process of suction of food substances in the gastrointestinal tract a definite role is played by such physical factors as diffusion, osmosis, and filtration, which in the living body conform to complex biological laws. It has been shown in numerous investigations that among the large number of factors favoring the suction of carbohydrates, amino acids and fats, it is the diffusion and active transport processes which are of the greatest importance (A. V. Rikkl'; R. O. Faytel'berg; O. A. Shishova-Kasatochkina; A. M. Ugolev; Verzar and McDougall; Wilson; Wiseman; Crane, Forster, et al.; Heinz, Curran; Stein). The energy expended on

- 30 -

Physiology

USSR   UDC: 612.386-06:612.273.3/-087.45

SMIRNOV, K. V., and BABKINA, O. I.

"Shift in the Rate of Absorption and Incorporation of C^{14}-Labeled Glucose in Organs and Tissues During Exposure to Hypoxia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 12, Dec 70, pp 29-31

Abstract: Rats were exposed to acute hypoxia for 15 to 20 min and then injected with 2 ml of C^{14}-labelled glucose with an activity of 25 microcuries. Up to 3 hours later, the glucose concentration in the gastric contents was appreciably higher than in controls. The temporary inhibition of evacuation of glucose from the stomach was ascribed to vagopyloric spasm. C^{14} activity in the liver, brain, stomach, and intestinal walls was higher in experimental animals than in controls, while the specific radioactivity of the lungs, kidneys, spleen, and muscles was the same as in controls. Exposure to hypoxia slowed the excretion of the isotope in the urine but increased its excretion in the feces.

1/2   014   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--ELECTRODIALYSIS STUDY OF ANIONIC POLYMERIZATION CATALYSTS -U-

AUTHOR-(02)-BABKINA, O.N., DYACHKOVSKIY, F.S.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(4), 301-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRODIALYSIS, POLYMERIZATION CATALYST, STYRENE,
    ORGANOLITHIUM COMPOUND, GUANIDINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1238   STEP NO--UR/0460/70/012/004/0301/0303

CIRC ACCESSION NO--AP0134912
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0134912
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEVERAL ANIONIC CATALYSTS, E.G.,
ETI.   C SUB10 H SUB8 LI, AND LIVING POLYSTYRENE (RLI PLUS C SUB8 H
SUB8) WERE STUDIED BY ELECTRODIALYSIS IN A 3 COMPARTMENT DIALYZER AT
20DEGREES UNDER AR.   MAX. POLYSTYRENE (I) YIELDS WERE OBTAINED IN THE
PRESENCE OF LI PRIME POSITIVE; OTHER IONS SUCH AS NH SUB4 PRIME
POSITIVE, NR SUB4 PRIME POSITIVE, AND CN SUB3 H SUB6 PRIME POSITIVE
(GUANIDINIUM) WERE LESS EFFECTIVE. THE YIELD OF I WAS PROPORTIONAL TO
THE QUANTITY OF ELECTRICITY PASSING THROUGH THE SOLN. AND MONOMER CONCN.
ANIONIC POLYMN. OF PHCH:CH SUB2 MAY OCCUR WITHOUT METALLIC ANTIIONS.
     FACILITY: FILIAL INST. KHIM. FIZ., CHERNOGOLOVKA, USSR.

UDC 666.112.92:546.18

USSR

SHCHAVELEV, O. S., Candidate of Sciences, BABKINA, V. A.

"Investigation of the Thermooptical Constant W of Phosphate Glasses as a Function of Their Chemical Composition"

Leningrad, Optiko-mekhanicheskaya Promyshlennost', No 9, Sep 70, pp 43-46

Abstract: An experimental study is made of the effect which various components have on the thermooptical constant W of five types of phosphate glass. A total of 28 different components were added in the five series of experiments. It is found that grades of glass with low thermooptical constant and a variety of optical properties can be produced by combining phosphorus anhydride with components having positive and negative thermo-optical constants. Thus the results of these tests definitely show that a phosphate base is extremely promising for synthesis of glass with a low thermooptical constant. The results of these experiments should be considered preliminary. A more thorou-study must be made into the thermooptical properties of specific 1/1 types of phosphate glass in this category.

USSR

UDC 666.112.92:546.18

SHCHAVELEV, O. S., BABKINA, V. A., and DIDENKO, L. A.

"Optical Glass"

USSR Author's Certificate No 366159, Filed 29 Sep 71, Published 16 Jan 73
(from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7,
Mar (a) 73, Claim No 1701960/29-33)

Translation: An optical glass including P_2O_5, BaO, PbO; La_2O_3, Al_2O_5, B_2O_3,
K_2O; Nb_2O_5; and CeO_2 is distinguished by the fact that in order to guarantee a
small thermooptical constant with a characteristic refraction of 1.1611 and a
mean dispersion of 0.01095, it contains the above components in the following
quantities, weight %: P_2O_5 42-45, BaO 36.5-39.5, PbO 8.5-10.5, La_2O_3 2-3,
Al_2O_3 1-2, B_2O_3 1-2, K_2O 2-3, Nb_2O_5 0.1-1, CeO_2 0.1-1.

1/1

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USSR

UDC: 8.74

BABKO, L. D., YEVLADENKO, V. N.

"Automated System for Syntactical Testing of Responses of 'Recognizer' Students"

Mat. i Inform. Probl. Prognozir. i Upr. Naukoy [Mathematics and Information Problems in Prediction and Control of Science--Collection of Works], Kiev, 1971, pp 165-172 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V556, by V. Utkin)

Translation: The component parts of the "recognizer" system are defined: a recoder, models of automatic systems for syntactical checking of answers, including a model of an alpha-recognizer of syntactical correctness of students' answers, and an error locator. The system runs on the VESM-6 computer, occupies approximately 1000 words of memory and checks an average of 8000 symbols per second. A grammatical system describing one version of ALGOL-60 is presently connected to it.

1/1

UDC 8.74

USSR

BABKO, L. D.

"Some Problems of Error Location in Sentences of Formal Languages"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 346-356 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V464)

Translation: Methods are proposed for monitoring the sentences of formal languages permitting detection of syntactic errors in the controlled sentence. The idea of the methods consists in more precise definition of the error concept. The basis for the error concept is the concept of an inadmissible sequence satisfying a simple structural condition. The properties of the proposed methods are presented. It is demonstrated that one of the proposed methods can detect all of the errors in sentences before introducing any changes in the sentences. It is also demonstrated that the monitoring techniques are partial error location techniques and therefore these methods cannot always detect all the errors before introducing corrections into the controlled sentence. It is noted that the discussed methods can be used for syntactic monitoring of programs and the control of trainee responses. In the case of syntactic control the formal language errors are interpreted as syntactic errors. In the case of

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USSR

BABKO, L. D., Teoriya yazykov i metody postroyeniya sistem programmir., Kiev-Alushta, 1972, pp 346-356

monitoring the answers of trainees, the controlled sentence is interpreted as the answer of the trainee and the formal language, as the set of all correct answers to the given question. The error in the formal language is interpreted as the error in the trainee response.

2/2

UDC 51.801

USSR

BABKO, L. D., STAROVOYTOV, L. N.

"An Algorithm for Syntactic Monitoring of the Responses of Trainees"

V sb. Mat. i inform. probl. prognozir. i upr. naukoy (Mathematical and Information Problems of Forecasting and Control of Science — collection of works), Kiev, 1971, pp 173-183 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V702)

Translation: In this paper an algorithm is proposed for monitoring whether α belongs to a language generated by G by the given pair (α, G) where α is a sentence (the monitored response) and G is a grammar. The region of application of the algorithm includes the set of all context-free languages of practical importance.

The version of the algorithm executed on the BESM-6 computer permits a set of pairs (α_i, G_i) with a total sentence length of 3,000 to 5,000 symbols to be monitored in one second.

1/1

USSR

UDC 621.313.322.013.8.001.24

BABKO, L. V., YURGANOV, A. A., YUREVICH, YE. I.

"Optimal Emergency Control of the Generating Units of Power Systems"

V sb. Vozbuzhdenive, regulir. i ustovchivost' sinkhron. nashin (Excitation, Regulation and Stability of Synchronous Machines -- collection of works), Leningrad, Nauka Press, 1970, pp 42-50 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye207)

Translation: A study is made of optimal nonlinear control of the excitation of a turbogenerator as applied to the standard power system.   The equations describing the motion of the object are reduced to a form which is convenient for application of the principle of the maximum. The combined criterion of optimalness insuring maximum limits of dynamic stability is investigated, and a procedure is described for determining the control corresponding to this criterion. The study was performed on an analog computer, and the results were checked on an electrodynamic model. There are 3 illustrations and a 4-entry bibliography.

1/1

- 113 -

USSR   UDC 669.15.018.8

BABKOV, A. A., and CHERKASHINA, N. P.

"Effect of Hot Plastic Deformation on Structure and Mechanical Properties
of Kh21N5T Steel"

Sb. tr. TsNII chern. metallurgii (Collection of Works of Central Scientific
Research Institute of Ferrous Metallurgy), 1970, vyp. 77, pp 108-112 (from
RZh-Metallurgiya, No 3, Mar 71, Abstract No 31586 by authors)

Translation: The authors studied the mechanical properties of as-cast and
as-deformed Kh21N5T steel (14.7-ton ingot, slab, and thin sheet), and made a
chemical analysis of alpha and gamma phases on a microanalyzer of the CAMECA
Company during ingot conversion to sheet. No dendritic segregation of chemical
elements is observed in the metal of ingot, slabs, or sheet. One illustration.
Two tables. Bibliography with four titles.

1/1

- 11 -

USSR

BABKOV, L. M. KOVNER, M. A., MEL'NIK, V. I., PUChKOVSKAYa, G. A., KhARChENKO, N. P., and ShPAK, N. T.

"Vibration, Luminescence, and Absorption Spectra of Benzophenone and Their Interpretation"

Abstract: Benzophenone has a number of properties that are presently of interest: significant piezoelectric effect, 100% conversion from the excited singlet level to the triplet state, high photochemical activity in hydrogen-containing solvents, and effective transfer of excitation energy. The majority of these effects are due to the characteristics of the electron structure of the benzophenone molecule.

In this study, infra-red spectra and luminescence and absorption spectra of benzophenone are obtained and their oscillatory structure is resolved. The problem of normal molecular oscillations of benzophenone in the ground electron state is solved. On the basis of a calculation of the frequencies and shapes of oscillations the frequencies are related to types of symmetry of the C_2 group and to oscillations of bonds and angles. The changes in the oscillatory frequencies with excitation to the singlet and triplet electron states are determined and an interpretation of the vibron transitions is suggested.
1/1

USSR

BABKOV, V. V.

"Model of Genetic Evolution of Populations With Spatial Isolation (in a Computer Experiment)"

V sb. Probl. kibernetiki (Problems of Cybernetics--collection of works), vyp. 25, Moscow, "Nauka", 1972, pp 77-80 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V594)

Translation: The paper proposes a realization of a planar model of a population with strict spatial isolation in a computer experiment. The results are discussed. Author's abstract.

1/1

1/2   020   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--A PLANE CONTACT PROBLEM OF THE THEORY OF ELASTICITY FOR A CIRCULAR
  RING -U-
AUTHOR-(02)-BABLOYAN, A.A., SAAKIAN, V.G.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK ARMIANSKOI SSR, IZVESTIIA, MEKHANIKA, VOL. 23, NO.
  1, 1970, P. 3-17
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS

TOPIC TAGS--ELASTICITY THEORY, METAL RING, BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1491   STEP NO--UR/0430/70/023/001/0003/0017

CIRC ACCESSION NO--AP0120278
                        UNCLASSIFIED

2/2   020
CIRC ACCESSION NO--AP0120278   UNCLASSIFIED   PROCESSING DATE--23OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLUTION OF THE PLANE STRAIN
PROBLEM FOR A CIRCULAR RING WHOSE INNER AND OUTER BOUNDARIES ARE LOADED
BY MORE THAN ONE IDENTICAL SYMMETRICALLY POSITIONED RIGID PUNCHES WITH
EQUAL DIMENSIONS ON EACH OF THE BOUNDARIES. ATTENTION IS GIVEN TO CASES
WHERE THE INTERNAL AND EXTERNAL PUNCHES ARE OPPOSITE EACH OTHER AND
WHERE THEY ARE STAGGERED. THE PROBLEM IS REDUCED TO THE SOLUTION OF A
DUAL TRIGONOMETRIC SERIES SYSTEM WHICH IN TURN IS REDUCED TO TWO
INFINITE SYSTEMS OF LINEAR ALGEBRAIC EQUATIONS. CONVENIENT FORMULAS ARE
GIVEN FOR CALCULATING THE CONTACT STRESSES AND RADIAL DISPLACEMENTS.
    FACILITY: AKADEMIIA NAUK ARMIANSKOI SSR, INSTITUT MATEMATIKI I
MEKHANIKI, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED

1/2   009
TITLE--GELATIN AND GLUE --U--   UNCLASSIFIED

AUTHOR-(02)-BABLOYAN, O.O., YAZYKOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,576
REFERENCE--OTKRYTIYA, IZOBRET., PROM, OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

PROCESSING DATE--16OCT70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLUE, GEL, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1086

CIRC ACCESSION NO--AA0116552   STEP NO--UR/0482/70/000/000/0000/0000

UNCLASSIFIED

USSR

UDC 621.313.322.013.8.001.24

BABKO, L. V., YURGANOV, A. A., YUREVICH, YE. I.

"Optimal Emergency Control of the Generating Units of Power Systems"

V sb. Vozbuzhdeniye, regulir. i ustoychivost' sinkhron. mashin (Excitation, Regulation and Stability of Synchronous Machines -- collection of works), Leningrad, Nauka Press, 1970, pp 42-50 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye207)

Translation: A study is made of optimal nonlinear control of the excitation of a turbogenerator as applied to the standard power system. The equations describing the motion of the object are reduced to a form which is convenient for application of the principle of the maximum. The combined criterion of optimalness insuring maximum limits of dynamic stability is investigated, and a procedure is described for determining the control corresponding to this criterion. The study was performed on an analog computer, and the results were checked on an electrodynamic model. There are 3 illustrations and a 4-entry bibliography.

1/1

- 113 -

USSR

UDC 669.15.018.8

BABKOV, A. A., and CHERKASHINA, N. P.

"Effect of Hot Plastic Deformation on Structure and Mechanical Properties of Kh21N5T Steel"

Sb. tr. TsNII chern. metallurgii (Collection of Works of Central Scientific Research Institute of Ferrous Metallurgy), 1970, vyp. 77, pp 108-112 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 31586 by authors)

Translation: The authors studied the mechanical properties of as-cast and as-deformed Kh21N5T steel (14.7-ton ingot, slab, and thin sheet), and made a chemical analysis of alpha and gamma phases on a microanalyzer of the CAMECA Company during ingot conversion to sheet. No dendritic segregation of chemical elements is observed in the metal of ingot, slabs, or sheet. One illustration. Two tables. Bibliography with four titles.

1/1

BABKOV, L. M. KOVNER, M. A., MEL'NIK, V. I., PUChKOVSKAYa, G. A., KhARChENKO, N. P., and ShPAK, N. T.

"Vibration, Luminescence,and Absorption Spectra of Benzophenone and Their Interpretation"

Abstract: Benzophenone has a number of properties that are presently of interest: significant piezoelectric effect, 100% conversion from the excited singlet level to the triplet state, high photochemical activity in hydrogen-containing solvents, and effective transfer of excitation energy. The majority of these effects are due to the characteristics of the electron structure of the benzophenone molecule.

    In this study, infra-red spectra and luminescence and absorption spectra of benzophenone are obtained and their oscillatory structure is resolved. The problem of normal molecular oscillations of benzophenone in the ground electron state is solved. On the basis of a calculation of the frequencies and shapes of oscillations the frequencies are related to types of symmetry of the C_2 group and to oscillations of bonds and angles. The changes in the oscillatory frequencies with excitation to the singlet and triplet electron states are determined and an interpretation of the vibron transitions is suggested.

1/1

USSR

BABKOV, V. V.

"Model of Genetic Evolution of Populations With Spatial Isolation (in a Computer Experiment)"

V sb. Probl. kibernetiki (Problems of Cybernetics--collection of works), vyp. 25, Moscow, "Nauka", 1972, pp 77-80 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V594)

Translation: The paper proposes a realization of a planar model of a population with strict spatial isolation in a computer experiment. The results are discussed. Author's abstract.

1/1

1/2   020   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--A PLANE CONTACT PROBLEM OF THE THEORY OF ELASTICITY FOR A CIRCULAR
    RING -U-
AUTHOR-(02)-BABLOYAN, A.A., SAAKIAN, V.G.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK ARMIANSKOI SSR, IZVESTIIA, MEKHANIKA, VOL. 23, NO.
    1, 1970, P. 3-17
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS

TOPIC TAGS--ELASTICITY THEORY, METAL RING, BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1491   STEP NO--UR/0430/70/023/001/0003/0017

CIRC ACCESSION NO--AP0120278
                          UNCLASSIFIED

UNCLASSIFIED

2/2   020

CIRC ACCESSION NO--AP0120278

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLUTION OF THE PLANE STRAIN PROBLEM FOR A CIRCULAR RING WHOSE INNER AND OUTER BOUNDARIES ARE LOADED BY MORE THAN ONE IDENTICAL SYMMETRICALLY POSITIONED RIGID PUNCHES WITH EQUAL DIMENSIONS ON EACH OF THE BOUNDARIES. ATTENTION IS GIVEN TO CASES WHERE THE INTERNAL AND EXTERNAL PUNCHES ARE OPPOSITE EACH OTHER AND WHERE THEY ARE STAGGERED. THE PROBLEM IS REDUCED TO THE SOLUTION OF A DUAL TRIGONOMETRIC SERIES SYSTEM WHICH IN TURN IS REDUCED TO TWO INFINITE SYSTEMS OF LINEAR ALGEBRAIC EQUATIONS. CONVENIENT FORMULAS ARE GIVEN FOR CALCULATING THE CONTACT STRESSES AND RADIAL DISPLACEMENTS. FACILITY: AKADEMIIA NAUK ARMIANSKOI SSR, INSTITUT MATEMATIKI I MEKHANIKI, YEREVAN, ARMENIAN SSR.

TITLE--GELATIN AND GLUE -U-

AUTHOR-(02)-BABLOYAN, O.O., YAZYKOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,576
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLUE, GEL, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1086   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0116552
                            UNCLASSIFIED

UNCLASSIFIED

2/2   009
CIRC ACCESSION NO--AA0116552
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GELATIN AND GLUE, WITH
DESTRUCTION, SAPON., AND REMOVAL OF FATTY BY PRODUCTS AND PREPN. OF
COLLAGEN FOR EXTN., IS PREPD. BY TREATING PULVERIZED GLUE GELATIN RAW
MATERIAL WITH AN ALK. SODA SOLN. AFTER PICKLING, WASHING, AND
NEUTRALIZING. THEN THE MATERIAL IS FURTHER WASHED, NEUTRALIZED, AND
TREATED IN THE USUAL MANNER.

UNCLASSIFIED

1/2   022   UNCLASSIFIED   PROCESSING DATE—30OCT70
TITLE—COMPARATIVE CHARACTERISTICS OF SOME TYPES OF ANESTHESIA AFTER
   ACTIVITY OF SERUM LACTATEDEHYDROGENASE ISOENZYMES -U-
AUTHOR-(05)-DANILENKO, M.V., BORZHIYEVSKIY, TS.K., BABLYAK, D.YE.,
   KALINOVSKAYA, L.S., LUCHKO, A.S.
COUNTRY OF INFO—USSR

SOURCE—VRACHEBNOYE DELO, 1970, NR 4, PP 139-142

DATE PUBLISHED————70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—ANESTHESIA, LACTATE DEHYDROGENASE, STOMACH, SURGERY, LIVER

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—3002/1699   STEP NO—UR/0475/70/000/004/0139/0142

CIRC ACCESSION NO—AP0129069
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0129069   UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   PROCESSING DATE--30OCT70

LACTATEDEHYDROGENASE WAS STUDIED IN PATIENTS UNDERGOING GASTRIC RESECTION WITH THREE TYPES OF ANESTHESIA. IT WAS FOUND THAT ALTERATIONS OF TOTAL LACTATEDEHYDROGENASE INDEPENDENT OF THE FORM OF ANESTHESIA ARE CONNECTED WITH CHANGES OF ITS LIVER FRACTION.   THE DYNAMICS OF LIVER LACTATEDEHYDROGENASE LARGELY DEPENDED ON THE ANESTHESIA TYPE.   IN THIS RESPECT TRICHLOETHYLENE PROVED MORE SPARING THAN CHLOROFORM AND CYCLOPROPROPANE.   FACILITY: L'VOVSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

1

USSR   UDC: 621.791:62-415,62-42

KOCHUKOV, N. S. (Candidate of Technical Sciences), SMIRNOV, I. V.
(Technician), BOGDANOV, YE. M., BABONIN, I. V. and SEMERIKOV, N. V.
(Engineers)

"Welding of Tee and Multi-Tee Sections From Sheet Metal"

Moscow, Svarochnoye proizvodstvo, No 12, Dec 71, pp 29-31

Abstract: Thin-walled tee shapes are finding ever-increasing application
on account of lighter weight and greater rigidity. The recent trends and
techniques of producing tee structures include automatic argon arc welding.
Discussed here is the method of full-penetration welding to produce a
convex (reinforced) weld (over 2 mm thick) successfully tested on various
sheet materials (0.6-2 mm thick), including steels and alloys 1Kh18N9T,
VZh-102, VNS-16, EI435, OT4-1, VT-5. The weld strength is rated on the
basis of tensile and tear tests of the welded flange. In tensile tests
the failures occurred along the transition zone; the tear-induced failures
were in the parent metal indicating the significance of the reinforced weld.

1/2

USSR
KOCHUKOV, N. S. (Candidate of Technical Sciences), et al, Svarochnoye
proizvodstvo, No 12, Dec 71, pp 29-31

Complete adherence of parts to be welded is facilitated by the use of rolls
enabling greater productivity at lower expenditures for assembly and welding
jigs. (7 illustrations, 1 table).

2/2

Molecular Physics

UDC: 539.219.3:669.01

USSR

ARKHANOV, V. I., Academician of the Academy of Sciences of the UkrSSR, BABOSYUK, A. L., BALANAYEVA, N. O., BOHOSLOVS'KYY, V. M., KOVALENKO, L. D., STAFYEYEVA, N. M., Donetsk Physicotechnical Institute, AS UkrSSR

"Investigation of the Kinetics of Growth of Layers in Two-Phase Scales"

Kiev, Dopovidi Akademii Nauk Ukrains'koi URSR, Seriya A: Fizyko--Tekhnichni ta Matematychni Nauki, No 4, Apr 71, pp 341-344

Abstract: The authors investigate the kinetics of growth of layers of scale formed when Armco iron is oxidized at a temperature of 540°C and when cobalt is oxidized at 650°C. It is shown on the basis of experimental data that a layer of Fe_3O_4 forms when iron is oxidized in air, while the Fe_2O_3 layer on iron remains practically unchanged after a certain thickness is reached. In the case of cobalt, an increase is observed in the thickness of the Co_3O_4 layer, while the thickness of the CoO phase remains constant. These results are attributed to the imperfection of the oxides from which the scale is formed and to the collective participation of atoms in matter transfer.

1/1

Acc. Nr: *AP*0040340

Ref. Code: *UR 0481*

PRIMARY SOURCE: Eksperimental'naya Khirurgiya i Anesteziologiya, 1970, Nr *1* , pp *85-87*

THE CHANGE OF SH-GROUPS CONTENT IN BLOOD SERUM UNDER THE INFLUENCE OF PARARENAL NOVOCAIN BLOCK
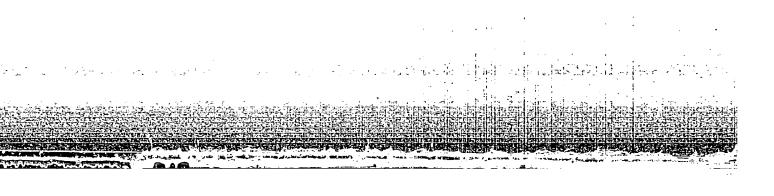
Zayets, T. L., Babskaya, Yu. Ye.

It is shown that the effect of pararenal novocain block on the structure of blood proteeins is caused by injection of novocain into the pararenal region. Administration into the same zone of saline produces no changes in the titer of SH-groups in serum proteins. Administration of novocain intravenously and intramuscularly likewise produces no effect on SH-groups of serum proteins.

REEL/FRAME
19741775

02-kc

PROCESSING DATE--30.0CT70

2/2   022
CIRC ACCESSION NO--AP0129069
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. LACTATEDEHYDROGENASE WAS STUDIED
IN PATIENTS UNDERGOING GASTRIC RESECTION WITH THREE TYPES OF ANESTHESIA.
IT WAS FOUND THAT ALTERATIONS OF TOTAL LACTATEDEHYDROGENASE INDEPENDENT
OF THE FORM OF ANESTHESIA ARE CONNECTED WITH CHANGES OF ITS LIVER
FRACTION.   THE DYNAMICS OF LIVER LACTATEDEHYDROGENASE LARGELY DEPENDED
ON THE ANESTHESIA TYPE.   IN THIS RESPECT TRICHLOETHYLENE PROVED MORE
SPARING THAN CHLOROFORM AND CYCLOPROPROPANE.   FACILITY:
L'VOVSKOGO MEDITSINSKOGO INSTITUTA.

1

USSR

UDC: 621.791:62-415.62-42

KOCHUKOV, N. S. (Candidate of Technical Sciences), SMIRNOV, I. V.
(Technician), BOGDANOV, YE. M., BABOKIN, I. V. and SEMERIKOV, N. V.
(Engineers)

"Welding of Tee and Multi-Tee Sections From Sheet Metal"

Moscow, Svarochnoye proizvodstvo, No 12, Dec 71, pp 29-31

Abstract: Thin-walled tee shapes are finding ever-increasing application
on account of lighter weight and greater rigidity. The recent trends and
techniques of producing tee structures include automatic argon arc welding.
Discussed here is the method of full-penetration welding to produce a
convex (reinforced) weld (over 2 mm thick) successfully tested on various
sheet materials (0.6-2 mm thick), including steels and alloys 1Kh18N9T,
VZh-102, VNS-16, ZT435, OT4-1, VT-5. The weld strength is rated on the
basis of tensile and tear tests of the welded flange. In tensile tests
the failures occurred along the transition zone. The welds produced were

1/2

USSR
KOCHUKOV, N. S. (Candidate of Technical Sciences), et al, Svarochnoye
proizvodstvo, No 12, Dec 71, pp 29-31

Complete adherence of parts to be welded is facilitated by the use of rolls
enabling greater productivity at lower expenditures for assembly and welding
jigs. (7 illustrations, 1 table).

2/2

Molecular Physics

USSR

UDC: 539.219.3:669.01

ARKHANOV, V. I., Academician of the Academy of Sciences of the UkrSSR, BABOSYUK, A. L., BALANAYEVA, N. O., BOHOSLOVS'KYY, V. M., KOVALENKO, L. D., STAFYEYEVA, N. M., Donetsk Physicotechnical Institute, AS UkrSSR

"Investigation of the Kinetics of Growth of Layers in Two-Phase Scales"

Abstract: The authors investigate the kinetics of growth of layers of scale formed when Armco iron is oxidized at a temperature of $540°C$ and when cobalt is oxidized at $650°C$. It is shown on the basis of experimental data that a layer of Fe_3O_4 forms when iron is oxidized in air, while the Fe_2O_3 layer on iron remains practically unchanged after a certain thickness is reached. In the case of cobalt, an increase is observed in the thickness of the Co_3O_4 layer, while the thickness of the CoO phase remains constant. These results are attributed to the imperfection of the oxides from which the scale is formed and to the collective participation of atoms in matter transfer.

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Acc. Nr: AP0040340   Ref. Code: UR 0481

THE CHANGE OF SH-GROUPS CONTENT IN BLOOD SERUM UNDER THE INFLUENCE OF PARARENAL NOVOCAIN BLOCK

Zayets, T. L., Babkaya, Yu. Ye.

It is shown that the effect of pararenal novocain block on the structure of blood proteins is caused by injection of novocain into the pararenal region. Administration into the same zone of saline produces no changes in the titer of SH-groups in serum proteins. Administration of novocain intravenously and intramuscularly likewise produces no effect on SH-groups of serum proteins.

REEL/FRAME
19741775

02 Bc

USSR

UDC 532.529.5

BABUKHA, G. L., SHENKOVSKAYA, P. T., and SHRAIBER, A. A.,
Institute of Technical Thermophysics of the Academy of Sciences
of the Ukrainian Soviet Socialist Republic

"Experimental Investigation of the Interaction of Liquid Drops"

Kiev, Gidromekhanika, No 18, 1971, pp 75—79

Abstract : The experimental investigation of the stability of a
motionless big drop, the "target", by its collisions with small
drops, the "shells", of different size, flying out from a rota-
ting capillary with different speeds, is described. The experi-
ments were carried out within the range of $12 < Re < 300$,
$10^{-3} < G < 0.5$, where G is the stability criterion $G = \dfrac{\eta^2}{\sigma \rho <\delta_1>}$

and η, ρ, and σ are the dynamic viscosity, density, and skin
stress coefficient and $<\delta_1>$ = average size of the target-drop.
From the processing of experimental data by the method of least

1/2

USSR

BABUKHA, G. L., et al., Gidromekhanika, No 18, 1971, pp 76-79

squares, the relation of the dimensionless parameter β, charac-
terizing the summary effect of collisions, $\beta = 0.674 - 0.010\ Re^{0.4}$
was determined. The relation shows that by $Re^{0.4} < 35.5$, the
average effect of collisions is negative, that is, a breaking of
drops is predominant in this region. Two illustr., four formulas,
three biblio. refs.

2/2

. 61 .

USSR

ALEKSEYEV, M. A., BABUEV, B. F., KUZ'MINSKIY, V. A.

"The Stability of the Laminar Boundary Layer with Supersonic Flow Velocities"

Uch. Zar. Tsentr. Aerogidrodinam., In-ta., [Scientific Writings of the Central Aerohydrodynamic Institute], 1971, 2, No 3, pp 53-41. (Translated from Refera-tivnyy Zhurnal Mekhanika, No 1, 1972, Abstract No 1B779 from the resume).

Translation: The critical values of surface temperature and velocity of air suction distributed over the surface, corresponding to full stabilization of flow in a laminar boundary layer for small, two dimensional perturbations are calculated for the self-similar solutions of the equations of a compressible laminar boundary layer, similar to the solutions of Faulkner and Scan for an incompressible fluid.

1/1

USSR

BABUNASHVILI, M. K.; CHITASHVILI, R. Ya. (Tbilisi)

"Optimization of Control in the Movement of a System Toward a Certain Goal"

ABSTRACT: The authors consider a controlled system the goal of which is the attainment of a certain level. A given penalty is assigned for each failure in attaining the goal, and the price of obtaining each complex resource designed to correct a given state as well as the expense connected with determining a given current state of the system are taken into account. The problem of finding the optimal method of control, selection of resources, and time of shut-down minimizing the average losses in the system is analytically stated and solved. The probability characteristics of attaining the goal of the system are studied.

1/1

BAKURIN, V. I., ZAKHAR'YEV, L. N., and LEMANSKIY, A. A.

"Effect of Nonidentical Antennas of a Doppler Velocity Meter on Its
Performance Accuracy"

Abstract: Formulas found in a previous work on determining the direction cor-
responding to the spectrum gravity center of a signal received by a Doppler
velocity meter and effective meter antenna centers were based on the assumption
that the receiving and transmitting antennas are identical. This paper examines
the validity of such results when the antennas are not identical. It is assumed
that the problem is cylindrical, the earth's surface is uneven with uncorre-
lated irregularities, and the meter moves horizontally. The Doppler spectrum
envelope D at the receiving antenna output is derived for antennas having
exponential amplitude distributions from the aperture field distributions. The
centroid of D is derived, and the effective meter antenna centers are then
found. These centers have different amplitude-phase distributions, and they
are displaced relative to their geometric centers. The resulting relations
for the displacement as a function of a weighted imaginary distance corresponding
to aperture point distribution amplitudes which correspondingly drop down
at the rear of the aperture to a power level P at the front of the aperture
1/2

USSR

BAKURIN, V. I., et al., Radiotekhnika, Vol 27, No 12, 1972, pp 94-96

for 0.01, 0.02, 0.04, 0.05, and 0.08 power levels. Finally, an equation is presented for the direction of the Doppler spectrum centroid of an incoming signal in terms of the directions of the principal maximums in the receiving and transmitting antenna patterns.

2/2

BABURIN, V. I., ZAKHAR'YEV, L. N., LEHANSKIY, A. A., Active Members of the
Scientific and Technical Society of Radio Engineering, Electronics and Com-
munications imeni A. S. Popov

"On the Center of Gravity of the Received Signal Spectrum and the Effective
Centers of the Antennas in a Doppler Flight Speed Indicator"

Abstract: A study is made of the way in which factors leading to asymmetric beam
coverage of the ground surface affect the beam direction corresponding to the
center of gravity of the Doppler spectrum and the position of the effective centers
of the antennas in a Doppler flight speed indicator. Calculation is simplified
by considering the cylindrical problem (antenna aperture bounded in one plane and
unbounded in the other), assuming a flat rough ground surface with uncorrelated
irregularities. It is further assumed that the antenna system of the speed in-
dicator is made up of two identical antennas -- receiving and transmitting -- in
a row and operating in the continuous mode. Side deflection of the indicator
beam is disregarded. All formulas are derived for the case of horizontal flight.
It is found that for certain beam directions and ratios of antenna lenght to
wavelength, the effective centers of the antennas practically coincide with the
centers of gravity of the fourth power of amplitude distributions of the field in
the antennas. Errors are evaluated. The authors thank V. I. Karandasov for con-
structive criticism.

AA0043438⁻   *Baburina, L. A.*

UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

229409 PROTEINACEOUS FODDER YEAST is obtained by
cultivationof the Candida yeasts in a
nutrient medium comprising a vegetable raw
material hydrolysate such as e.g., wood hydrolysate
as the carbon source. For ensuring increased yield
of the proteinaceous fodder yeast and reducing
substances, the starting wood is first subjected
to the action of gamma-radiation and then pref.
thermally treated at 150-200° for 5-60 mins.
10.5.67.. as 1156535/28-13, SHARKOV, V.I. et al.
Forestry Acad. Leningrad. (1.9.69) Bul.
15/25.4.69. Class 6a, Int. Cl. C 12k.

19761770

AA0043438

AUTHORS: Sharkov, V. I.; Dmitriyeva, O. A; Baburina, L. A.; Bosenko, A. M.

Leningradskaya Lesotekhnicheskaya Akademiya imeni S. M. Kirova

19761771

USSR

UDC 621.785.53:661.65:620.172.2

BABUSHKIN, B. V., and POLYAKOV, B. Z., Belorussian Polytechnic Institute

"Residual Stresses in Steel After Saturation with Boron From Melts"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1973, pp 27-30

Abstract: Effects of the phase layer composition, carbon content, tempering temperature, heat treatment, and natural aging on residual stresses of borated U* and 45 steels were experimentally investigated. The residual stresses determined by the electro-tensometer method are discussed, and compared with calculated values. The phase composition was found to affect the distribution of residual stresses. The increase of the carbon content increased the residual stresses in the borated layer at non-electrolytic saturation and decreased it at electrolytic saturation. Maximum residual stresses result with furnace cooling from the borating temperature. Increased cooling rates result in decreased residual stresses; minimum residual stresses were observed after water quenching. Tempering increased the compression stresses in the layer. Natural aging up to nine months has little effect on the distribution of residual stresses. Four figures, one table, seven bibliographic references.

1/1

- 38 -

USSR   UDC 535.375

BABUSKHIN, F. A. (Komi State Pedagogical Institute)

"Combination Scattering of X-Rays in Crystals"

Tomsk, Izvestiya VUZ Fizika (News of the Higher Educational
Institutions, Physics), No 9(112), 1971, pp 26-28

Abstract: A quantum theory, based on S-matrix scattering, is
given for a general case of combination scattering of X-rays
by k-electrons in crystals. In addition to the dipole approxima-
tion, the matrix element is calculated. Equations are derived
for the angular dependence of combination scattering intensity.
The expression for the differential cross section has a Compton-
like angular dependence, which differs from that obtained by
Mizuno and Ohmura (J. Phys. Soc. Japan, Vol 22, p 445, 1967),
who considered only the dipole approximation. The differential
cross section equation obtained holds also for polycrystalline
substances.

Orig. art. has 5 refs.

1/1

- 45 -

UDC 621.315.592

USSR

GORELOVA, L.A., BABUSHKIN, M.K.

"Use Of Probability-Statistical Methods For Predicting The Levels Of The Parameters Of Equipment For Growing Epitaxial Layers"

V sb. Novoye v tekhn. poluprovodn. proiz-va (New Semiconductor Production Technology--Collection Of Works), Voronezh, Voronezh University, 1971, pp 49-58 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4869)

Translation: The results are described of work on the use of prediction methods during the conduct of a statistical analysis of the growth processes of equipment for epitaxial layer growth. In the procedure information was processed, including data on the parameters of more than 40 models of units developed in the USSR, USA, Great Britain, and Japan during five years. It is shown that units with cylindrical reaction vessels in which 100 substrates are simultaneously loaded have higher productivity. Probability estimates are given of the parameters of epitaxial units expected in 1975. 7 ref. G.S.

1/1

Aerospace Medicine

USSR

BABUSHKIN, V.

"Accelerations in Flight"

Moscow, Aviatsiya i Kosmonavtika, No 2, 1972, p 40

Translation: Acceleration in flight as a mechanical factor negatively in-
fluences many physiological systems of a flier's organism. Its primary
effects are reflected by an increase of body weight, the displacement of
organs and tissues, and the restriction of motor activity which hampers the
accomplishment of work tasks. Muscular sensitivity fluctuates and, conse-
quently, there is a significant increase in the force applied to the con-
trol levers; the range of movement increases. All this negatively affects,
above all, the quality of performance of delicate coordinated movements.

However the major reason for the disruption of the efficiency of a pilot
does not lie in the direct effect of acceleration on the "working organs"
of the flier, but in its indirect effect on the central nervous system.

As a result of acceleration physical changes arise in the internal medium of
an organism, especially in the vascular system. They consist of the
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BABUSHKIN, V., Aviatsiya i Kosmonavtika, No 2, 1972, p 40

movement of blood depending on the vector of acceleration into the vessels
of the abdominal cavity and the lower extremities, and the reduction of the
volume of blood circulating in the vessels of the upper half of the body.
The latter leads to a decrease of the blood supply to the brain and in the
end to oxygen starvation. The basic reason for the change in physiological
functions and the lowering of the efficiency of the flier is the temporarily
hypoxic state of the central nervous system and primarily of its highest
branch -- the cortex of the brain.

The most evident signs of changes setting in in the central nervous system
during acceleration are the visual disturbances: the appearance of a "gray
shroud" before one's eyes, the narrowing of one's field of vision, and the
complete loss of vision ("the black shroud"). If acceleration continues,
and especially if it increases, more serious disorders of the functions of
the central nervous system may follow the impairment of vision, right up to
a loss of consciousness.

2/6

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BABUSHKIN, V., Aviatsiya i Kosmonavtika, No 2, 1972, p 40

During impairment of vision the pilot does not lose consciousness and is able
to control the aircraft. However such a state can continue for only a few
seconds, and with the increase of the gradient of acceleration this time-span
decreases. Hence one can consider the impairment of vision a signal for the
approach of maximum acceleration. At this stage, in order to prevent loss
of consciousness the pilot must increase the tension of the muscles of the
abdomen and lower extremities and decrease overload.

The human organism arranged an extensive complex of adapted mechanisms which
help it to resist the effects of acceleration up to the absolute limit. De-
fensive muscular reflexes are of great significance. The tensing of the
muscles of the abdomen and the lower extremities prevents the flow of blood
into these parts of the body and eases its flow to the heart.

Since the adapted mechanisms of the organism are always under the control of
the central nervous system, their activity, naturally, depends upon the
system's functional conditions. Consequently, all the factors which ad-
versely affect the functioning of the central nervous system must lead to
a decrease of the activity of the compensating mechanisms and, as a result,
3/6

USSR.

BABUSHKIN, V., Aviatsiya i Kosmonavtika, No 2, 1972, p 40

to a lowering of the ability to withstand acceleration. Various illnesses
which weaken the general physical condition of the pilot (excessive smoking,
consumption of alcohol, nervous-emotional pressure, exhaustion) produce ad-
verse influences on the adapted functions of the organism. Resistance to
fatigue, likewise, is decreased by oxygen starvation, a sharp increase in
the temperature of the surrounding air, or by flying on an empty stomach.
In the last situation not only is impairment of vision possible but also
fainting with comparatively minor acceleration. Lengthy absence from pilot-
ing an aircraft influences the ability to withstand acceleration because of
the loss of preparedness of the compensatory mechanisms of the cardiovascular
system. It is also necessary to remember that one must not fly an aircraft
and take medicines not prescribed by a doctor, especially just before a
flight.

In order to increase the ability to withstand acceleration it is not only
necessary to eliminate factors which adversely affect the condition of the
healthy flier, but also to strengthen his general physical condition and
to increase the activity of all the adapted mechanisms. Special note should
4/6

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BABUSHKIN, V., Aviatsiya i Kosmonavtika, No 2, 1972, p 40

be taken of physical training. It should be regular and with a singularity
of purpose; that is, besides general physical exercises it should include
special exercises related to a shift in body position in space and to the
creation of stresses of a static-dynamic character (gymnastics, acrobatics,
sprint races, etc.). In sports, basketball, volleyball, handball, and
tennis are recommended.

While carrying out the recommended exercises it is vital to further exercise
the muscles of the abdomen and to develop an efficient method of breathing
(to learn while tensing the stomach muscles to transfer respiration from the
abdomen to the chest).

The most important stage of the training cycle is flight training. Only
while at the controls during systematic flights is it genuinely possible to
master the necessary functional coordination of all the compensatory mech-
anisms which prevent the effects of acceleration.

However the physiological capabilities of pilots may still turn out to be
insufficient for the complete utilization of the aero-technical data of
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